Università degli Studi di L'Aquila - Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica

Course catalogue

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Programme of Course "Programmazione Ad Oggetti"

- Code: I0647
- Type of course unit: Compulsory (Laurea in Ingegneria dell'Informazione curriculum Automatica)
- Level of course unit: Undergraduate Degrees
- Semester: 2

Number of ects credits: (Laurea in Ingegneria dell'Informazione) 6 (workload 150 hours)

Teachers: Gabriele Di Stefano

1	**Course objectives**	The aim of the course is to provide the foundamental concepts of the Object Oriented Programming (OOP). Such concepts are analyzed and then implemented in the design of C++ and Java programs. The UML language is used as an OOP notation.
2	**Course content and learning outcomes (dublin descriptors)**	Topics of the module include: • Besic concepts: Object Oriented Technology, introduction to Java (and partially C++) programming techniques. • Objects: Incapsulation, Information and Implementation Hiding. Attributes and methods. • Classes: Sets of objects and models for objects. • Object characteristics: Object Identity and Status. Messages between objects. • Relationships between Classes: Association, aggregation, composition, usage relation. • Inheritance: Mechanism for code reuse. Class hierarchies. • Polymorphism. • Abstract Classes and Interfaces. • Further concepts: Packages, file management and exception management • Programming: for each concept, programming examples are given in Java (and partially in C++). On successful completion of this module, the student should : • To have solid knowledge of methods and techniques in Object Oriented Programming (OOP). • To understand the fundamental OOP concepts of Objects and their usage, Class design, Interfaces, Relationships between Classes, Inheritance, Polymorphism. To applying acquired knowledge to Java programming. • To provide a description of a problem and to design a first solution by performing an analitical description of relevant entities and relationships in an application domain. • To demonstrate skill in OO design to propose and communicate solutions. To show skils in programming also through the use of tools like IDEs. • To exploite the acquired knowledge and abilities to solve problems in a larger variety of contexts. To demonstrate capacity for reading and understand other texts on related topics.
3	**Course prerequisites**	The student must know basic notions about programmation languages and computer architecture.
4	**Teaching methodsand language**	Lectures and exercises based on team works and home works. **Language**: Italian **Reference textbooks** • Cay S. Horstmann, ***Concetti di Informatica e Fondamenti di Java*** . Apogeo . 2020.
5	**Assessment methods**	Written and oral exam.